POLAR RESEARCH SUPPORT SECTION
INTEROFFICE MEMO

DATE: 15 July 1997

FROM: Mgr., Technology Development

TO: Section Head
Facilities Engineering Manager
South Pole Station Operations and Construction Manager

SUBJ: Site Selection Recommendation for the NSF-NASA South Pole TDRS Relay System

REF: A. SPTR Site Evaluation, V1.0, 14 July 1997
B. SPTR Site Selection Analysis, Location V. Requirements Trades, V2.1, 14 July 1997

- **RECOMMENDED SITE: Elevated Dorm, Room 204**
- **Number of sites evaluated: 8**
- **Review Process:**
  - Coordinating review team — NSF(Lynch, Marty, Brier, Smith, Tupick), NASA and AlliedSignal, ASA (IS, FMC, Ops, Science Support), and Dark Sector grantees (Loewenstein, Stark, Dragovan, et. al.)
  - Site review included assistance from present South Pole ASA/IS and grantee winter-overs
- **Key factors for consideration as follows. Failure to satisfy any one criterion was grounds for disqualification of a site:**
  - EMI potential with core Dark Sector instruments and lab sites
  - Other EMI to existing systems or science instrumentation
  - Radiation safety hazard to personnel
  - Clear line of sight to satellite
  - Available floor space
  - Signal cable (electrical) run length
  - Electrical power feeder capacity
- **Main impacts of selecting the Elevated Dorm as the installation site:**
  - Loss of one dorm room for two berthing positions
  - Requirement to maintain environment in room year-round
- **Mitigation of impacts**

  - Summer berthing needs can be absorbed by no-impact addition to New Summer Camp
  - Winter berthing needs can be absorbed by no-impact accommodation in Hypertat winter berthing installation (winter over berthing for construction)
  - First year winter environment control can be managed with manageable room modifications (insulation, strip heating)
  - Second year and following winter environment control is moot due to winter berthing occupation of building

- **Benefits to TDRS Installation**
  - Ease of installation and sustaining maintenance
  - Simple roof antenna mount and operator access to antennas
  - Meets facility/space requirements
  - Longevity for installation until TDRS earth station in SPSM comes on-line
  - Meets EMI/EMC requirements

- **Other Benefits**
  - Fiber optic LAN extension required will facilitate extending emergent needs for better LAN connection to support Summer Construction Camp
  - Room configuration facilitates co-location of GOES-3 ground station equipment; this improves reliability, maintainability, and performance of the GOES ground station (relocation from present cramped closet on first floor)
  - Improved LAN extension to Elevated Dorm enables provisioning of domestic LAN access in rooms for summer grantees (requested item by the South Pole Science User's Committee); allows potential for domestic access for wintering construction personnel in future